**Balancing Equations and Stoichiometry**

Balance the following equations

1) __ $C_6H_6$ + __ $O_2$ → __ $H_2O$ + __ $CO_2$

2) __ NaI + __ $Pb(SO_4)_2$ → __ $PbI_4$ + __ $Na_2SO_4$

3) __ $NH_3$ + __ $O_2$ →__ NO + __ $H_2O$

4) __ $Fe(OH)_3$ → __ $Fe_2O_3$ + __ $H_2O$

5) __ $HNO_3$ + __ $Mg(OH)_2$ → __$H_2O$ + __ $Mg(NO_3)_2$

6) __ $H_3PO_4$ + __ NaBr → __ HBr + __ $Na_3PO_4$

7) __ C + __ $H_2$ → __ $C_3H_8$

8) __ CaO + __ $MnI_4$ → __ $MnO_2$ + __ $CaI_2$

9) __ $Fe_2O_3$ + __ $H_2O$ → __ $Fe(OH)_3$

10) __ $C_2H_2$ + __ $H_2$ → __ $C_2H_6$

11) __ $VF_5$ + __ HI → __ $V_2I_{10}$ + __ HF

12) __ $OsO_4$ + __ $PtCl_4$ → __ $PtO_2$ + __ $OsCl_8$

13) __ $CF_4$ + __ $Br_2$ → __ $CBr_4$ + __ $F_2$

14) __ $Hg_2I_2$ + __ $O_2$ → __ $Hg_2O$ + __ $I_2$

15) __ $Y(NO_3)_2$ + __ $GaPO_4$ → __ $YPO_4$ + __ $Ga(NO_3)_2$

**Stoichiometry**

1) When sodium hydroxide reacts with carbon dioxide it produces sodium carbonate and water. When 10.23 g of sodium hydroxide is used with an excess of carbon dioxide, what mass and volume of water is produced?

2) If 24.3 g of aluminum nitride react with 10.3 g of water to produce aluminum hydroxide and ammonia, what is the percent yield if only 2.015 g of aluminum hydroxide is recovered?

3) Solutions of sulfurfic acid and lead (II) acetate react to from solid lead (II) sulfate and acetic acid. If 7.50 g of sulfuric acid and and 7.50 g of lead (II) acetate are mixed, calculate the number of grams of each reactant and product present after the reaction is completed.

4) When hydrogen sulfide gas is bubbled into a solution of sodium hydroxide, the reaction forms sodium sulfide and water. How many grams of sodium sulfide are formed if the solution used contains 2.00 grams of sodium hydroxide and the reaction has a 92.0% yield? How many molecules of hydrogen sulfide reacted?